

Rooting Out Hunger In Malawi With Nutritious Orange-Fleshed Sweetpotato: Phase 1 Achievements

Period of 1st October 2009 to 30th April 2014

By the end of the 4.5 year Phase 1 of the Rooting out Hunger in Malawi with Nutritious Orange-fleshed Sweetpotato (OFSP) project over 190,000 households received OFSP planting material through a multiple partner approach. OFSP is being fully integrated into the Scaling-Up Nutrition (SUN) effort to combat malnutrition at the community level.

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Farmer in Zomba has expanded OFSP from 67.5 sq m to 0.5 ha (credit J. Ndovi)

What is the problem?

The Government of Malawi (GoM) is committed to poverty reduction and has been monitoring poverty annually since 2005. Currently, the national percentage of persons falling below the poverty line is 39%, a marked improvement from the 50% found in 2005. However, rural poverty remains much higher (43%) than urban (14%) and poverty in the rural South (51%) significantly higher than in the center (41%) or the north (31%) of the country. Since agriculture is the major occupation in rural areas, getting this sector moving is critical for food security and poverty reduction.

Malnutrition among young children remains one of the biggest challenges in Malawi. Children aged 0–23 months are the most vulnerable group with a peak incidence of mortality and morbidity. In spite of the gains made in poverty reduction, levels of malnutrition remain high, with 47% of children under five years of age stunted, 59% having vitamin A deficiency, and 13% underweight. Infant mortality also remains high, with 112 deaths per 1,000 live births estimated for 2010. The situation is exacerbated by the high prevalence of HIV/AIDS among economically active adults, currently estimated at 12%.

In Malawi, maize is the most important food crop, followed by cassava, sweetpotato, Irish potato, and sorghum. In 2012, sweetpotato production in



Partners:

- Department of Agricultural Research Services (DARS)
- Department of Extension Services (DAES)
- Department of Nutrition, HIV and AIDS at the Office of President and Cabinet (DNHA-OPC)
- Catholic Development Commission (CADECOM)
- Millennium Villages Project (MVP)
- Concern Universal (CU)
- FICA-FAO
- Wellness and Agriculture for Life Advancement (WALA)
- Farmers Union of Malawi (FUM)
- Kachele Farmers' Club in Salima District
- Tuesday Trust – Irish-Malawian NGO based in Salima
- Ndimoyo Palliative Care based in Salima
- Kazilingira Estate based in Kasungu



Farmer's group in Michisi-Palombe promoting OFSP (credit J. Ndovi)

Malawi was 3.5 million metric tons. Sweetpotato is widely grown and becoming more significant as dry spells are increasing and maize is much more susceptible to dry spells than sweetpotato. Consequently, there is great interest on the part of government and other partners in mitigating these risks with nutritious orange-fleshed sweetpotato.

What did we want to achieve?

This 4.5-year program intended to improve vitamin A and energy intake for at least 70,000 rural households with young children, the group most vulnerable to vitamin A deficiency (VAD), and people living with HIV and AIDS using orange-fleshed sweetpotato (OFSP) as the key entry point. The 1-2-3 seed system combined with nutrition awareness campaigns and OFSP product demonstrations and training of trainers approach, aimed to stimulate demand for OFSP and ensured that by the end of the project at least 20% of households growing OFSP would earn at least US \$100 per year from OFSP sales and would increase their sweetpotato yields by 50%.

How did we make it happen?

CIP and partners in relevant government departments and nongovernmental organizations (NGOs) have provided access to large amounts of OFSP planting material by building a network of decentralized multiplication sites

to serve surrounding communities. The project used subsidized vouchers to reach vulnerable households and non-subsidized vouchers for better off households. The implementation strategy included five integrated components:

1. Strengthened partnerships with the relevant government, NGOs, and other private sector players.
2. Provided access to vines through an improved decentralized "seed" system and vouchers.
3. Training programs with information-rich syllabi for the trainers, field days, and technical backstopping. The project aligned with the National Nutrition Education and Communication Strategy as the basic strategy used by the SUN 1000 Special Days movement.
4. Demand creation campaigns utilizing theatre, dance, poetry, songs, and banners
5. Linking to nutrition efforts with non-governmental organizations (NGOs) which had interests of using the OFSP in the programs to increase impact on dietary practices.
6. Postharvest handling, processing and utilization, and small-scale marketing approach to generate income by the resource-poor farmers.
7. Research on intercropping OFSP and maize (published), intercropping OFSP and soybeans (report in preparation) and intercropping OFSP and onion (a Master of Science thesis).



Where did we work?

The project has worked in Nsanje, Chikhwawa, Zomba, Phalombe, Mulanje, Thyolo, Chiradzulu, Balaka, Machinga districts of the Southern Region of Malawi; Dedza, Lilongwe, Salima, Dowa and Kasungu districts in Central Region; and Mzimba district in Northern Region (Fig. 1). The primary vine multiplication and the breeding program managed by DARS and backstopped by CIP-led project Rooting out Hunger, were based at the Bvumbwe Research Station.



Indication of Adoption of OFSP:

- expansion of the areas
- having more IPs

Implementing Partners and project area since Oct 2009

1. Chikhwawa under Cadecom
2. Phalombe under CU
3. Zomba under MVP
4. Dedza under CU

Implementing Partner and project area since Jan 2011

5. Mulanje under CU

Implementing Partner and project area since Sep 2011

6. Salima under Kachele Club (farmers club)

Implementing Partners and project area since Nov 2011

7. Balaka under WALA
8. Machinga under WALA
9. Zomba under WALA
10. Chiradzulu under WALA
11. Thyolo under WALA
12. Chikhwawa under WALA
13. Nsanje under WALA

Implementing Partners and project area since Jan 2012 and Dec 2013

14. Dedza under FUM
15. Lilongwe under FUM
16. Dowa under FUM
17. Kasungu under FICA-FAO, CRS-Mzuzu CADECOM
18. Mzimba under FICA-FAO, CRS-Mzuzu CADECOM

Fig 1. Map showing locations of OFSP vine dissemination in Malawi by Implementing Partners (IPs)



What have we achieved so far?

- The OFSP variety Zondeni available in year 1 is now widely disseminated.
- Six new OFSP varieties are now in the final stages of virus elimination. An additional two OFSP varieties, Kadyabwerere and Anaakwanire can be readily used by farmers in the next rainy season. These virus-free tissue culture plantlets will be used to initiate disease-free stocks of foundation material.
- A screen house and tissue culture lab at Bvumbwe research station have been rehabilitated and has disease-free planting material of all OFSP varieties.
- A water reservoir of 157 m³ including pipes for irrigating OFSP nurseries and other important trials for the national program was built at Bvumbwe Research Station.
- The established 1-2-3 seed system has provided OFSP quality planting material. Due to this decentralized effort, by 30th April 2014 the project had reached 191,092 beneficiary households
- Three hundred fifty drip irrigation kits were delivered to the 350 farmers' groups in 15 districts. In addition, over 24,815 farmers and extension staff (54% women) participated in field days and other sensitization activities. Knowledge concerning OFSP and OFSP processed products were promoted during these days.
- 4,131 agriculturists (Extension staff) trained (45% women) and 24,815 lead farmers trained, sensitized, and attended workshops. The trainings were on sweetpotato production, multiplication, Triple S (Storage in Sand and Sprouting) management, pests and diseases control,



Admiring output 7 months after planting (in-ground storage) in OFSP soybean trial (credit E. Abidin)



Irish Aid staff on learning visit to Malawi visit agro-processor in Zomba (credit E. Abidin)

drip irrigation installation management, postharvest handling including storage in sand to have fresh roots for food and market, OFSP processing and utilization, and small-scale business aimed at generating income for resource-poor farmers.

- 171 DVMs (298.3 ha under sweetpotato; 47% women) operated during 2013/14 rainy season in 5 districts: Dedza, Balaka, Zomba, Phalombe, Mulanje and Chikhwawa. women). The average income per DVM was USD 158 (Mk 66,360) through the subsidized voucher in 2013/2014.
- One doctoral student has initiated her field research on Postharvest Handling and Processing in New Zealand University.
- One Master's student completed her degree with distinction on 1st July 2014 from the National University in Taichung, Taiwan. Her research was done in Dedza District on the topic of intercropping OFSP and onion for weevil (*Cylas spp*) damage reduction.
- The value of total vine sales by the primary multiplier (Bvumbwe Research Station) was USD \$ 15,710 after two years of project implementation.
- The value of vine sales by DVMs has reached US \$ 128,732, with 40% of this value coming from the non-subsidized voucher scheme. Vine cuttings were purchased by NGOs, local government and farmers.
- The Endline Survey reported on the impact of this

project on the increase of land under sweetpotato cultivation and OFSP, household wealth accumulation, changing on the image of sweetpotato from "a poor-men crop into a "valuable" crop. As farmers said: "nothing can be thrown away from OFSP".

- Yields in recipient households have been increased from 6t/ha to average of 18t/ha after adopting the improved variety Zondeni.
- There is high potential for OFSP-maize intercropping to contribute towards sustainable intensification in Malawi. Farmers' rank preferences for OFSP-maize spatial arrangements changed between year one and year two, with the higher OFSP-density (2 rows OFSP:1 row maize) arrangement preferred in year two. The marked absence of sweetpotato weevil damage on sweetpotato in the OFSP-maize intercrops was noted in both years.



What is next?

Irish Aid in Malawi is mandating CIP to design a program at the national level by including potato, OFSP and cassava. This program will focus on marketing and value chains and will strongly support the secretariat of the Roots and Tubers Crop Innovative Platform to wider the context in achieving the Millennium Development Goals (MDGs) in Malawi. In Phase 2, we expect to expand our marketing activities, especially targetting the Blantyre market.